

# Design of a Website-Based Waqf Management Information System at the Anzor Waqf Institution in West Java

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## ABSTRACT

Professional, transparent, and accountable waqf management has become an essential requirement for waqf institutions in the digital era. Lembaga Wakaf Anzor Jawa Barat, as a waqf management institution, faces several challenges related to manual and non-integrated data management of waqf donors (wakif), trustees (nazhir), waqf assets, and reporting processes. These conditions may lead to data inconsistency, delays in information delivery, and limited transparency in waqf management. This study aims to design and develop a web-based waqf management information system to support effective and efficient waqf administration. The research method used is Research and Development (R&D) with an Agile approach adapted to the Scrum framework practices. Data were collected through observation, interviews, documentation, and literature study. The system was developed iteratively through several sprints and tested using the Black Box Testing method. The results indicate that the developed system is able to manage waqf data in an integrated manner, generate accurate and timely reports, and improve efficiency and transparency in waqf management. Based on the testing results, all system functionalities operate as expected and the system is considered feasible for implementation. This research is expected to contribute to the development of waqf management information systems and serve as a reference for waqf institutions in adopting information technology in the digital era.

**Keywords :** Agile; Digitalization; Information Systems, Waqf, Website.

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## INTRODUCTION

Waqf is an Islamic economic instrument that plays a strategic role in improving community welfare[1], [2]. Proper, transparent, and accountable waqf management can have a significant socio-economic impact, particularly in the areas of education, health, economic empowerment, and public facility development[1], [3], [4]. In Indonesia, the potential for waqf is enormous, but in practice, many waqf management institutions still face various obstacles, particularly in data management, reporting, and information transparency to the public[5].

The West Java Anzor Waqf Institute, as an organization engaged in the management and distribution of waqf assets, plays a crucial role in collecting, managing, and distributing waqf funds and assets productively[6], [7]. However, based on existing conditions on the ground, the waqf data management process at this institution is still carried out conventionally. Recording data on waqf donors, waqf objects, asset management, and waqf benefit distribution reports largely uses manual, paper-based bookkeeping, while some use simple spreadsheets such as Microsoft Excel. The current system is not yet integrated, often leading to problems such as data duplication, recording errors, difficulties in locating archives, delays in reporting, and limited access to information for managers and stakeholders.

Furthermore, the reporting and monitoring of waqf assets cannot be carried out in real time, thus suboptimal transparency and accountability in waqf management[8]. In the current era of digital transformation, waqf management institutions are required to adopt information technology to improve efficiency, effectiveness, and the quality of services to the public. The use of web-based information systems is one solution to address these issues, as it enables integrated data management, faster information access, and more accurate and transparent reporting.

Several previous studies have shown that implementing web-based information systems in the management of Islamic social financial institutions can improve administrative performance, minimize recording errors, and enhance the institution's transparency and accountability[9]. However, research specifically addressing the design of a waqf management information system at the Anzor Waqf Institution in West Java is still very limited. Therefore, this study contributes to designing a system that meets the institution's operational needs and supports the digitalization of waqf management.

Based on these issues, a web-based waqf management information system is needed that can systematically and computerize the process of recording waqf data, managing waqf assets, reporting, and monitoring the distribution of waqf benefits. This system is expected to improve data management efficiency, accelerate reporting processes, minimize recording errors, and enhance the institution's transparency and accountability to the public. Therefore, this research aims to design and develop a web-based waqf management information system at the Anzor Waqf Institution in West Java that can support waqf administration processes effectively, efficiently, and integratedly, and serve as a digital solution for modern and transparent waqf management.

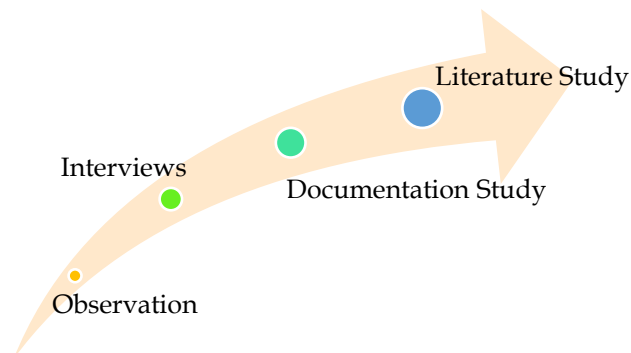
## **METHOD**

This research used a Research and Development (R&D) Method with a software engineering approach to design and build a web-based waqf management information system for the West Java Anzor Waqf Institution. This Method was chosen because the research aimed not only to analyze problems but also to produce a product in the form of an information system that could be used directly by the relevant institution.

The research approach used was descriptive qualitative and quantitative. The qualitative approach was used to explore system needs [10], [11], understand

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the business processes of waqf management, and identify problems faced by the institution. Meanwhile, the quantitative approach was used to measure the level of system success through functional testing and evaluation of system implementation results[12].



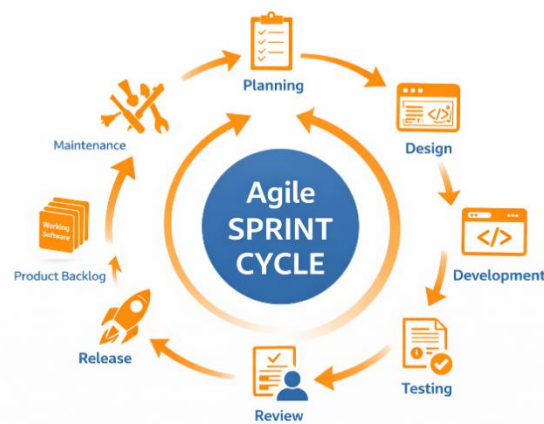
**Picture 1. Data Collection Method[13]**

Data collection for this research was conducted using several techniques, including:

1. Observation, conducted by directly observing the waqf management process at the West Java Anzor Waqf Institution to understand the workflow and existing problems.
2. Interviews, conducted with waqf managers (nazhir) and related parties to obtain in-depth information regarding system needs and obstacles encountered in waqf management.
3. Documentation study, conducted by collecting and studying documents related to waqf management, such as waqf asset data, administrative reports, and institutional archives.
4. Literature study, conducted by reviewing books, scientific journals, laws and regulations on waqf, and relevant previous research as a theoretical basis and comparison.

### **System Development**

The system development method used in this research was the Agile Development Method. The Agile method was chosen because it emphasizes iterative and incremental system development, allowing for continuous adjustments to user needs throughout the development process[14]. The agile method can be seen in Figure 2.



**Picture 2. Agile Method**

This approach is appropriate for the development of a waqf management information system, which requires flexibility to respond to changing institutional needs and active user involvement (nazhir) in the development process.

### Agile Method Stages

#### 1. Planning

The planning stage is the initial stage in the Agile method, which aims to identify general system requirements[15]. At this stage, requirements are gathered through observations and interviews with the West Java Anzor Waqf Institute. The obtained requirements are then organized into a product backlog, which lists system features and functions based on priority, such as waqf data management, nazhir data, waqf asset data, and waqf report generation.

#### 2. Design

The design stage is carried out in stages and adapts to the features to be developed in each iteration. The design includes system architecture design, database design, and user interface design[16]. This stage also uses system modeling such as Use Case Diagrams and Class Diagrams to illustrate system flow and relationships between components.

#### 3. Development

The development stage is carried out in several iterations (sprints). Each sprint focuses on the development of specific features according to the priorities in the product backlog[17]. At this stage, the coding and integration of system modules is carried out in stages. The result of each sprint is a usable and testable system component, allowing users to provide direct feedback.

#### 4. Testing

Testing is conducted at the end of each iteration to ensure that the developed features meet user needs. The testing method used is Black Box Testing, which focuses on testing system functions without considering the internal structure of the program code[18]. This testing aims to ensure that each system feature, such as waqf data management and report generation, functions properly and is free from functional errors.

#### 5. Evaluation and Feedback (Review)

At this stage, the results of the tested system development are evaluated with users. Users provide feedback regarding the system's suitability for the institution's operational needs. This feedback is used as the basis for improvements or feature development in the next iteration. This stage is a key advantage of the Agile method because it allows for continuous improvement.

6. Implementation and Maintenance (Release & Maintenance)

Once the system is deemed to meet user needs, it is implemented in the operational environment of the Anzor Waqf Institution of West Java. The maintenance stage is carried out to ensure the system continues to run well and adapts if there are changes in needs in the future.

**RESULTS AND DISCUSSION**

**Research Results**

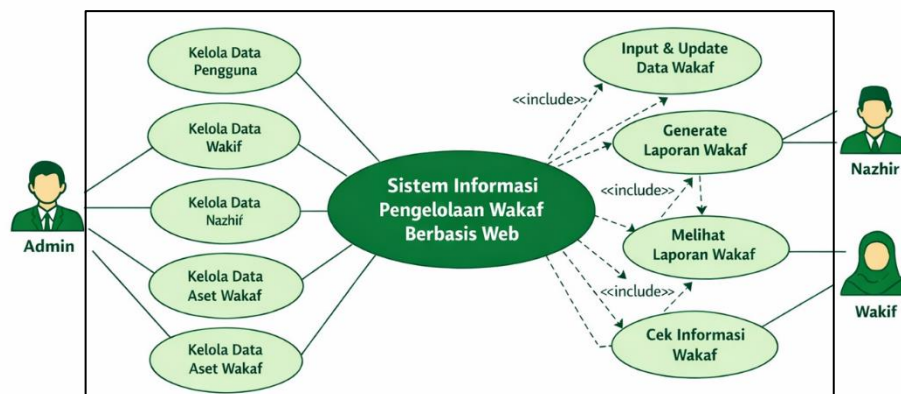
The research resulted in a Web-Based Waqf Management Information System designed and implemented to support waqf management activities at the Anzor Waqf Institution in West Java. The system was developed according to user needs, based on business process analysis and problems identified in the previous management system.

1. System Requirements Analysis Results

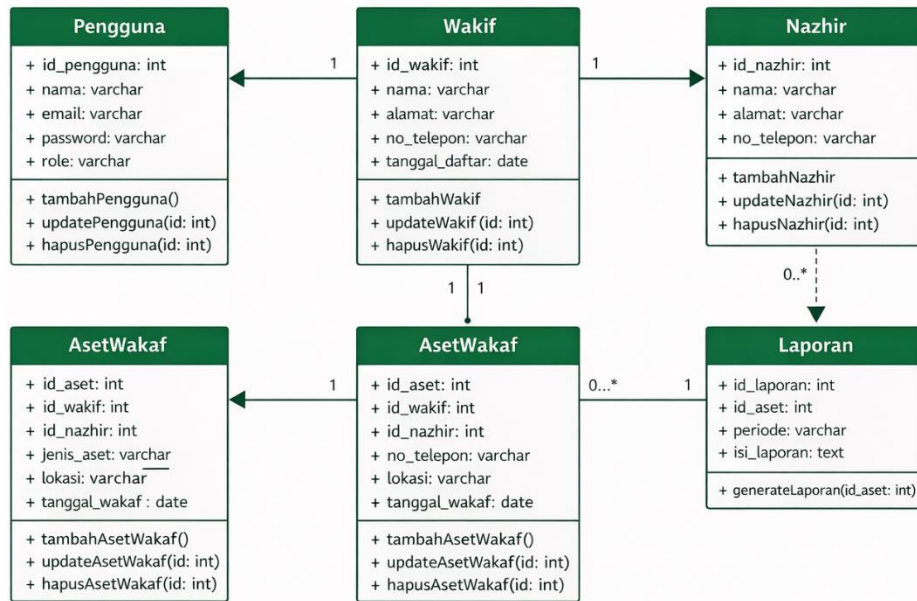
Based on observations and interviews with waqf managers (nazhir), several key system requirements were identified, including:

- a. Structured waqf data management,
- b. Management of nazhir and system user data,
- c. Recording and management of waqf asset data,
- d. Fast and accurate presentation of waqf management reports, and
- e. Easy access to information for internal stakeholders.

Identified non-functional requirements include usability, data security, and the availability of a system accessible through web-based tools.



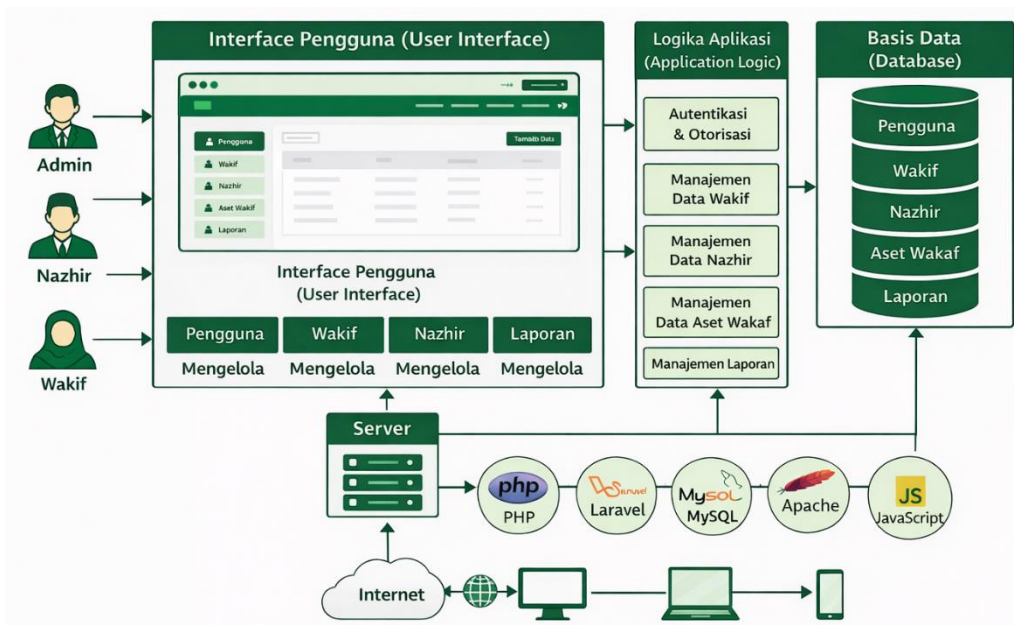
Picture 3. Use Case Diagram



Picture 4. Class Diagram

2. System Design Results

System design was conducted to illustrate the system flow and structure. The system was designed with a web-based architecture consisting of main modules: a user authentication module, a waqf data management module, a nazhir data management module, a waqf asset management module, and a reporting module. The database design was structured to minimize data redundancy and improve information consistency. The user interface was designed to be simple and easy to understand, allowing it to be used by waqf managers with non-technical backgrounds. This design aims to improve user experience and reduce errors in data input.



Picture 5. System Design

3. System Implementation Results

During the implementation phase, the system was developed using web technology that supports dynamic data processing. All designed modules were successfully implemented according to the requirements specifications. The system allows users to input, update, delete, and search waqf data in an integrated manner within a single platform. The system also provides a waqf management report generation feature that can be automatically generated based on data stored in the database. These reports can be used for internal evaluations and as a form of accountability to relevant parties.



Picture 6. System Dashboard Main View

4. System Testing Results

System testing was conducted using the Black Box Testing method, examining each of the system's main functions. The test results showed that all system features, such as user login, waqf data management, nazhir data, waqf asset data, and report generation, functioned as required, and no significant functional errors were found. Therefore, the system was declared suitable for use in supporting waqf management at the Ansoor Waqf Institution in West Java.

Table 1. System Testing Results (Black Box Testing)

No	Tested Module	Test Scenario	Input Data	Expected Result	Actual Result	Test Result
1	Login	User enters valid username and password	Valid username and password	System successfully authenticates user and redirects to dashboard	System displays dashboard page	Pass
2	Login	User enters invalid username	Invalid login credentials	System displays error message	Error message displayed correctly	Pass

No	Tested Module	Test Scenario	Input Data	Expected Result	Actual Result	Test Result
3	Wakif Data Management	or password Add new wakif data	Complete wakif data	Data is saved and displayed in wakif list	Data successfully saved and displayed	Pass
4	Wakif Data Management	Edit wakif data	Updated wakif information	Data is updated correctly	Data updated as expected	Pass
5	Wakif Data Management	Delete wakif data	Selected wakif record	Data is removed from the system	Data deleted successfully	Pass
6	Nazhir Data Management	Add new nazhir data	Complete nazhir data	Data is saved and displayed in nazhir list	Data successfully saved and displayed	Pass
7	Wakaf Asset Management	Add new wakaf asset	Asset type, location, value	Asset data is stored and displayed	Asset data saved correctly	Pass
8	Wakaf Asset Management	Edit wakaf asset data	Updated asset information	Asset data is updated	Asset updated successfully	Pass
9	Wakaf Asset Management	Delete wakaf asset data	Selected asset record	Asset data is deleted	Asset deleted successfully	Pass
10	Report Generation	Generate wakaf report	Selected report parameters	System generates report automatically	Report generated correctly	Pass
11	Report Generation	View wakaf report	Selected report record	Report details are displayed	Report displayed as expected	Pass
12	Logout	User logs out from the system	Logout command	User session ends and redirects to login page	System redirects to login page	Pass

**Discussion**

Based on the research results, the implementation of a Web-Based Waqf Management Information System has had a positive impact on the waqf management process at the Ansor Waqf Institution in West Java. The developed system overcomes the main problems previously encountered, particularly those related to unintegrated data management and limitations in information presentation.

The use of a web-based information system improves the work efficiency of waqf managers, as data recording and processing can be performed more quickly and in a structured manner compared to manual systems. Furthermore, data

accuracy is also improved because the system is designed to minimize input errors and data duplication. This aligns with the principles of waqf governance, which demand accountability and transparency in the management of waqf assets.

In terms of transparency, this system facilitates the institution's systematic and accurate preparation of waqf management reports. The resulting reports can be used as a form of accountability to internal and external parties, potentially increasing public trust in the waqf management institution. These findings support previous research that suggests that the implementation of an information system can improve the quality of governance in Islamic philanthropic institutions.

Overall, the research results indicate that the design and implementation of a Web-Based Waqf Management Information System is an effective solution to support professional and sustainable waqf management. This system serves not only as an administrative tool but also as a decision-making support tool for waqf managers.

## CONCLUSION

Based on the comparison table, the implementation of the Web-Based Waqf Management Information System shows significant efficiency improvements compared to the manual method. Data processing and report generation times are substantially reduced, while data accuracy, consistency, and transparency have improved considerably. These results indicate that the developed system effectively enhances the performance of waqf management in a more efficient and reliable manner.

**Table 2. Performance Comparison Before and After System Implementation**

No	Performance Indicator	Manual Method (Before)	Web-Based System (After)	Improvement (%)
1	Data entry time per waqf donor record	10 minutes	3 minutes	70%
2	Waqf data search time	8 minutes	1 minute	87.5%
3	Monthly report generation time	120 minutes	10 minutes	91.7%
4	Data recording error rate	12%	2%	↓ 83.3%
5	Data consistency and completeness	75%	98%	+30.7%
6	Data accessibility	Limited (local)	Online & real-time	Significant
7	Data update speed	Slow	Fast (real-time)	Significant
8	Reporting transparency	Low	High	Significant
9	Staff work efficiency	65%	95%	+46.2%
10	User satisfaction level	68%	92%	+35.3%

This research successfully designed and developed a web-based waqf management information system at the Anzor Waqf Institution in West Java, as a solution to the previously manual and unintegrated waqf management process. The system was developed using an Agile approach with a Scrum framework, ensuring an iterative, adaptive development process with active user involvement.

The results of the study indicate that the developed system is capable of managing data on waqif (donors), nazhir (non-donors), waqf assets, and waqf management reports in a structured and integrated manner. System implementation has been proven to improve data management efficiency, accelerate reporting processes, and enhance information accuracy and transparency. Based on testing using the Black Box Testing method, all of the system's main functions functioned according to user requirements without any significant functional errors, thus declaring the system fit for use.

Therefore, this web-based waqf management information system is expected to support the implementation of professional, transparent, and accountable waqf governance at the Anzor Waqf Institution in West Java. Furthermore, this research is expected to serve as a reference for other waqf institutions in utilizing information technology to optimize waqf management in the digital era.

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